recover all switch costs, including vertical feature costs.[1238] If we adopt the SCIS model, AT&T/WorldCom argue that Verizon fails to provide support for its input values and that this failure is grounds for disallowing these separate vertical feature prices entirely.[1239] Alternatively, AT&T/WorldCom re-state the Verizon vertical features cost study using different vendor discounts and different inputs for certain features.[1240] AT&T/WorldCom emphasize that their ability to evaluate fully Verizon's proposed inputs is limited by Verizon's failure to document how it developed these inputs.[1241]

2. Discussion

492. We reject Verizon's proposed separate vertical feature prices. Verizon identifies values for the inputs its uses in the SCIS/IN module, but it does not provide any justification for these input values. Verizon defends these input values against AT&T/WorldCom's criticism by arguing that they are based on the judgment of a product manager who has over 25 years of experience.[1242] It fails, however, to document or explain any of the data, assumptions, methodologies, calculations, formulas, or workpapers that might have been used by this product manager to develop these inputs.[1243]

493. Although Verizon has not met its burden of proof with respect to features cost inputs,[1244] AT&T/WorldCom do not dispute that there are in fact costs associated with these features, nor do they dispute that these costs are not recovered elsewhere. Accordingly, rather than adopt AT&T/WorldCom's suggestion that we disallow these costs entirely, we will instead require Verizon to re-run the SCIS/IN with the inputs proposed in AT&T/WorldCom's restatement and the vendor discounts we adopt in section V(C)(1)(b) above.[1245] We note that there is a need for consistency between the line growth assumptions we make to calculate the weighted average discount, the sizing of the switch in estimating the vertical feature investment,

---

[1238] *Id.*

[1239] AT&T/WorldCom Ex. 12, at 105.

[1240] *Id.*

[1241] *Id.* at 104-05.

[1242] Verizon Ex. 122, at 190-91.

[1243] *See* AT&T/WorldCom Ex. 12, at 105.

[1244] 47 C.F.R. § 51.505(e).

[1245] *See supra* section V(C)(1)(b). In particular, to the extent that the additional investment includes "getting started" investment, we direct Verizon to use the discount we adopt for "getting started" investment, *see supra* section V(C)(1)(b)(i); to the extent that the additional investment includes other end-office switch investment, we direct Verizon to use the discount we adopt for that investment, *see supra* section V(C)(1)(b)(ii)(a); to the extent that the additional investment includes end-office switch trunk port or SS7 link investment, we direct Verizon to use the discount we adopt for that investment, *see supra* section V(C)(1)(b)(iii).

and the number of line ports over which to spread the investment. We therefore require that the investment calculated using the SCIS/IN module should reflect the specific, unique hardware to provide vertical features for a switch sized to accommodate the present value of the investments required for the number of lines installed on the switch over a 12-year period, assuming a 2.5 percent annual rate of line growth, and that these lines are installed every two years. We also require that the line port demand over which to spread this vertical feature investment reflect the present value of the investments required for the number of line ports demanded over a 12-year period, and for which the associated end-user buys these vertical features, assuming a 2.5 percent annual rate of line growth, and that line demand grows every year.

VI. INTEROFFICE TRANSPORT

494. Interoffice transport refers to the transmission facilities used to carry traffic between incumbent LEC or competitive LEC wire centers or switches. There are two primary forms of local interoffice transport: (1) dedicated transport, and (2) common or shared transport.[1246] Essentially, dedicated transport is interoffice transport that is dedicated to a particular carrier and common transport is interoffice transport that is shared by more than one carrier.[1247]

495. The Commission's TELRIC pricing rules apply to the rates charged when dedicated and common transport are offered as UNEs.[1248] The *Local Competition First Report and Order* and the Commission's rules, however, provide only general guidance on the proper manner for incumbent LECs to recover dedicated transport and common transport costs. The Commission's rules require that dedicated transport costs "be recovered through flat-rated charges."[1249] An incumbent LEC may recover common transport costs "through usage-sensitive charges, or in another manner consistent with the manner that the incumbent LEC incurs those costs."[1250]

496. In its universal service orders, the Commission provided additional guidance for determining an incumbent LEC's forward-looking transport costs. In its analysis of the common transport cost models in the *Platform Order*, the Commission found that "models should accommodate an interoffice network that is capable of connecting switches designated as hosts and remotes in a way that is compatible with the capabilities of equipment and technology that

---

[1246] Because the parties generally use the term common transport rather than shared transport, we do so as well in this order. *See, e.g.*, Verizon Ex. 100, Vol. VI, Part C-9, section 1.1 (Service Description) ("Common Transport is one of the Unbundled Elements available to CLECs.").

[1247] Rates for dark fiber transport and for entrance facilities are discussed *infra* in section IX.

[1248] 47 C.F.R. §§ 51.501 (TELRIC pricing rules apply to UNEs).

[1249] 47 C.F.R. §§ 51.507(b), 51.509(c); *see also Local Competition First Report and Order*, 11 FCC Rcd at 15874, para. 744.

[1250] 47 C.F.R. § 51.509(d); *see* 47 C.F.R. § 51.507(c).

are available today and are consistent with current engineering practices."[1251] The Commission concluded that both models presented at the time – the BCPM and HAI 5.0 – "assume the least-cost, most-efficient and reasonable technology to provide the supported [universal] services. . . [and both] interconnect switching facilities with state-of-the-art SONET rings."[1252] The Commission further concluded that the HAI model better satisfied the forward-looking pricing methodology than the BCPM model did. Specifically, the Commission found that the HAI model (1) was less complex than the BCPM, while still providing sufficient detail to determine accurately common transport costs, and (2) relied on data computations and assumptions that were more readily available for review and comment.[1253] The Commission then incorporated the HAI model common transport module into the SM.[1254] Notably, however, because the Commission was determining universal service costs, it did not address dedicated transport costs and cost models.

A. Cost Models

1. Positions of the Parties

497. Verizon submitted cost studies that generate rates for both common transport and dedicated transport.[1255] To generate rates for dedicated transport, Verizon determines the fixed, monthly investment costs and the per mile investment costs, assuming the use of SONET technology (including SONET add/drop multiplexers (ADMs) and digital cross-connects (DCSs)), and assuming a "reasonable" utilization rate (*i.e.*, fill factor).[1256] Verizon uses negotiated prices from its most recent vintage vendor contracts then available (*i.e.*, 1998 contracts) to determine the material prices, and applies loading factors, including the EF&I factor, and land and building factors to generate total installed investment.[1257] The VRUC system

[1251] *Platform Order*, 13 FCC Rcd at 21353, para. 72.

[1252] *Id.* at 21355, para. 76. SONET stands for Synchronous Optical Network, and generally refers to fiber optic transmission facilities that operate at bit rates from 51.84 mbps to 39.812 gbps. *See* NEWTON'S TELECOM DICTIONARY 684-685 (18th ed. 2002).

[1253] *Platform Order*, 13 FCC Rcd at 21355-57, paras. 77-80.

[1254] *Id.* at 21354-57, paras. 75-80; *see also Inputs Order*, 14 FCC Rcd at 20291-92, para. 321 ("In the *Platform Order*, we concluded that the federal mechanism should incorporate, with certain modifications, the HAI 5.0a switching and interoffice facilities module.").

[1255] *See* Verizon Ex. 107, at 212-21; Verizon Ex. 100P, Parts C-9 (common transport) and D-2 (dedicated transport) (confidential version).

[1256] Verizon Ex. 107, at 214-218; *see* Verizon Initial Cost Brief at 117-18.

[1257] Verizon Ex. 107, at 40-47, 216-18. Verizon uses its VCost system to apply the transport EF&I factor. Verizon Ex. 100, Vol. VII, Part D-2, section 1 (Study Overview), subsection 1.3 (Cost Study Methodology) at 1.

is then used to obtain per unit investments.[1258] The Verizon study subsequently populates circuit designs within the Verizon network and weights these designs by frequency of use to determine an average dedicated transport investment at the DS-0 level. Verizon determines higher levels of investments on a DS-0 equivalent basis.[1259] Finally, Verizon applies ACFs to each investment account.[1260]

498. Verizon generates the fixed per MOU common transport rates and the per mile common transport rates in the same manner that it generates dedicated transport rates. Indeed, Verizon imports the final DS-1 dedicated transport costs into its common transport study.[1261] The Verizon common transport study also imports trunk costs from the SCIS cost model.[1262] Verizon then derives the common transport MOU rates from the imported monthly costs by dividing these costs by the per trunk average number of MOUs.[1263] Concurrent with the filing of its revised switching cost study and its November 1, 2001 revised UNE rate proposal, Verizon submitted corrections to certain algorithms in its common transport study.[1264] These corrections caused its proposed per mile common transport rate to double.[1265]

499. AT&T/WorldCom criticize Verizon's common transport cost study as improperly based on the costs of Verizon's embedded SONET ring architecture, with forward-looking adjustments applied to this embedded base.[1266] AT&T/WorldCom argue, therefore, that Verizon does not attempt to model a forward-looking network design as required by TELRIC principles.[1267] AT&T/WorldCom allege, moreover, that Verizon's forward-looking adjustments are merely unsubstantiated opinions of its subject matter experts.[1268]

[1258] *Id.* at 41, 216-17. VRUC is a cable investment inventory containing data from actual property cost records on the cost and amount of outside plant units deployed. The data are maintained on an annual basis. *Id.* at 120. EF&I factors are applied to the materials-only equipment prices. *Id.* at 121. For interoffice transport, the VRUC database contains total installed investments for fiber cable, including engineering and installation costs. *Id.* at 41, 216-17.

[1259] *Id.* at 218.

[1260] *Id.*; Verizon Initial Cost Brief at 118; *see supra* section III(E) for a discussion of ACFs.

[1261] Verizon Ex. 100P, Vol. VI, Part C-9 (Common Transport), sections 1.2 (Cost Study Methodology) and 3 (Inputs) (confidential version); *see also* AT&T/WorldCom Initial Cost Brief at 195.

[1262] Verizon Ex. 100P, Vol. VI, Part C-9 (Common Transport), section 3 (Inputs) (confidential version).

[1263] Verizon Ex. 107, at 219.

[1264] *See* Verizon Ex. 180; Tr. at 5594-95 (admitting same into evidence).

[1265] *See* Tr. 5637-38.

[1266] AT&T/WorldCom Initial Cost Brief at 193.

[1267] *Id.*

[1268] *Id.* (citing Tr. at 5628).

500. AT&T/WorldCom affirmatively propose using the MSM to generate TELRIC-compliant rates for common transport only.[1269] The MSM contains a switching and interoffice transport module.[1270] This module, like the Verizon cost study, assumes the use of SONET ring technology and network architecture.[1271] It models a network of two classes of rings: host/remote and tandem/host/standalone.[1272] As inputs, the module uses the total line count for every wire center; the distance between switches; peak traffic assumptions; and the distribution of local intraoffice, local interoffice, intraLATA toll, interexchange access, and operator services traffic.[1273] Calling minutes and volumes data inputs are derived from ARMIS data.[1274] The PNR database is used to provide line counts for the serving areas (each associated with a particular wire center), as well as wire center locations and interoffice distances.[1275] The module determines the traffic per subscriber based on the traffic assumptions and calculates the number of trunks necessary to carry this volume of traffic.[1276] Finally, the module uses an optimizing algorithm to ensure the modeling of the efficient construction of SONET rings.[1277]

501. To generate rates for dedicated transport, AT&T/WorldCom propose starting with the Verizon cost study,[1278] but correcting certain cost inputs, which will thereby enable the

---

[1269] *See* Tr. at 5551, 5559-62, 5599; AT&T/WorldCom Initial Cost Brief at 188-89; *see also* AT&T/WorldCom Ex. 7, at 3; Verizon Initial Cost Brief at 173.

[1270] *See* AT&T/WorldCom Ex. 14, Attach. A; AT&T/WorldCom Ex. 23, HAI Model Release 5.0a at 53-63 ("Switching/Transport module"); AT&T/WorldCom Initial Cost Brief at 188. Although AT&T/WorldCom filed an updated version of their common transport study later in the proceeding, *see* Keffer Dec. 12 Letter, Install A, the general model descriptions provided in the initial cost model filing remain the same.

[1271] AT&T/WorldCom Ex. 23, Switching/Transport module at 59.

[1272] *Id.*

[1273] *Id.* at 54; *see* AT&T/WorldCom Initial Cost Brief at 193.

[1274] AT&T/WorldCom Ex. 23, Switching/Transport module at 54.

[1275] *Id.* PNR Associates, the supplier of the PNR database, is now TNS Telecoms. *See* TNS Telecoms, *Notification Page* (visited Mar. 5, 2003) < http://www.indetec.com>. In the *Inputs Order*, the Commission adopted PNR's road surrogating algorithm to develop customer number and location data. *Inputs Order*, 14 FCC Rcd at 20176-20817, paras. 40-62.

[1276] AT&T/WorldCom Ex. 23, Switching/Transport module at 59.

[1277] *Id.* at 60.

[1278] AT&T/WorldCom Initial Cost Brief at 188-89; *see also* Tr. at 5562-63, 5599. AT&T/WorldCom claim that the MSM does not model dedicated transport, entrance facilities, or dark fiber transport. Rather, the MSM generates only per minute costs per DS-0 equivalent for dedicated transport. *See* AT&T/WorldCom Initial Cost Brief at 188. AT&T/WorldCom concede that these costs are not readily translated into fixed monthly costs, as required by the Commission's rules. *Id.*; 47 C.F.R. § 51.509(c). Thus, AT&T/WorldCom do not propose using the MSM to generate rates for dedicated transport elements.

Verizon study to generate TELRIC-compliant dedicated transport rates.[1279] The specific flaws that AT&T/WorldCom claim require correction are discussed individually, below.[1280]

502. Verizon claims that the MSM transport module is fundamentally incapable of generating forward-looking UNE rates and that the flaws in the MSM are not subject to any cure short of rejecting the model outright.[1281] Verizon alleges that the AT&T/WorldCom module is flawed for the following reasons: (1) it assumes a network inconsistent with Verizon's actual network in Virginia;[1282] (2) it relies on incorrect demand data;[1283] (3) it underestimates trunk counts;[1284] (4) it improperly determines the busy hour;[1285] (5) it fails to include capitalized labor costs that are necessary to account for circuit design, central office translations, and pre-activation testing;[1286] (6) it understates OC-3 multiplexing investments;[1287] (7) it understates investments for remote switches;[1288] (8) it fails to include any investment for umbilical cable between host and remote switches;[1289] (9) it improperly drops two wire centers;[1290] (10) it fails to optimize inputs and outputs with the loop module;[1291] and (11) it uses improper SONET electronics prices.[1292]

[1279] AT&T/WorldCom Initial Cost Brief at 180; *see also* Tr. at 5559-63, 5599.

[1280] *See infra* sections VI(B)-(D); AT&T/WorldCom Ex. 12. at 127, 137-38; AT&T/WorldCom Initial Cost Brief at 189-92; AT&T/WorldCom Reply Cost Brief at 94-96.

[1281] Verizon Ex. 163, at 8-9, 21, 24; Verizon Ex. 108, at 53-54.

[1282] Verizon Ex. 163, at 9-10, 13; Verizon Ex. 108 at 53-54; Verizon Initial Cost Brief at 121.

[1283] Verizon Ex. 109, at 57, 60; *see* Verizon Ex. 108, at 54.

[1284] Verizon Ex. 109, at 57-60, 64-65.

[1285] *See id.* at 50-51, 53-55.

[1286] *Id.* at 59.

[1287] Verizon Ex. 162, at 12-15; *but see* Verizon Ex. 109, at 65, *as modified by* Verizon Ex. 171 (Updated Calculations (Switching and IOF) in the Rebuttal Testimony of Francis J. Murphy) at 2 (The MSM, "with the AT&T/WorldCom changes, no longer understates ADM and DCS investment."); *see also* Tr. at 5634-35.

[1288] Verizon Ex. 162, at 11-15; *see* Tr. at 5606-07.

[1289] Verizon Ex. 163, at 15-17.

[1290] *Id.* at 8, 20-21.

[1291] Verizon Ex. 162, at 9.

[1292] *Id.* at 10 (citing Letter from William Jordan, Vice President, Federal Regulatory, BellSouth, to Magalie Roman Salas, Secretary, Federal Communications Commission, CC Docket Nos. 96-45 and 97-160 (filed Aug. 7, 1998)).

2. Discussion

503. *Dedicated Transport.* We adopt the Verizon dedicated transport cost study to establish dedicated transport rates. Because both Verizon and AT&T/WorldCom support use of the Verizon model to generate rates for dedicated transport, no controversy exists regarding the choice of cost model for this element.[1293] We analyze the appropriate forward-looking inputs that should be used in the Verizon model below.[1294] Verizon's dedicated transport study, moreover, complies with core TELRIC principles. Most notably, it assumes the deployment of the most efficient technology currently available for interoffice transport – fiber optic rings based on SONET technology.[1295]

504. *Common Transport.* We adopt the Verizon cost study to generate rates for common transport.[1296] We find the Verizon common transport cost study preferable to the MSM transport module because the Verizon study is the same basic study that we adopt for dedicated transport rates, and because it models a lower-cost, efficient network design based on available technology than does the MSM.

505. The key principle underlying TELRIC is that UNE prices should reflect the cost of the network that would exist in a competitive market (*i.e.*, the most efficient network using currently available technology).[1297] Both the MSM and the Verizon cost study are consistent with this core TELRIC principle. Specifically, both models assume that the transport network consists of fiber optic rings connecting circuit equipment based on SONET technology.[1298] In addition, both models are suitably transparent, with the user able to adjust the inputs. Both sides also agree that an optimal transport study would consider the actual traffic flows among the various nodes. Neither side, however, presents such a study because, they agree, such a study is not feasible.[1299] Consequently, we are presented with two admittedly imperfect, but TELRIC-

[1293] *See Local Competition First Report and Order*, 11 FCC Rcd at 15812, para. 618.

[1294] *See infra* sections VI(B)-(D).

[1295] *See* Verizon Ex. 107, at 214-18.

[1296] Common transport appears to be the one element for which Verizon proposes a lower rate than do AT&T/WorldCom. Despite this, the parties were unable to reach agreement on the rates for common transport. Tr. at 5551-53.

[1297] *See Local Competition First Report and Order*, 11 FCC Rcd at 15846, para. 679.

[1298] Verizon Ex. 107, at 214-18; AT&T/WorldCom Ex. 23, Switching/Transport module at 59.

[1299] Verizon Ex. 163, at 9 ("The data needed to design a whole SONET network at one time, accounting for the node-to-node circuit demand, is extraordinarily large and essentially unreliable for purposes of a model, because the demand constantly varies. Moreover, even if the data could be created, the required computations would be unmanageably large."); AT&T/WorldCom Initial Cost Brief at 194 ("A principal complaint by Verizon of the [MSM] is that it does not take into account the point-to-point traffic in developing facilities. But this criticism applies equally to Verizon's cost model."); *see also* Tr. at 5548, 5585-93.

compliant, common transport cost studies from which to choose.[1300]

506. As a practical matter, the network deployed to provide common transport is the same as the network deployed to provide dedicated transport. The difference lies not in the network configuration so much as in the particular UNE leased by, and the rate paid by, the competitive carrier. Dedicated transport is charged on a flat-rate basis, whereas common transport rates are usage-based.[1301] Consequently, consistency suggests use of the same model to calculate both dedicated and common transport rates, absent evidence that a model complies with the Commission's rules for one transport element, but not the other. No party has offered the MSM for both dedicated and common transport. Rather, both sides agree – and we have found – that the Verizon cost study should be used to establish dedicated transport rates. Verizon's common transport study is based on its dedicated transport study. Indeed, the Verizon common transport study imports many of its costs from the Verizon dedicated transport study.[1302] The primary difference between the two studies is the process by which the common transport study converts transport costs to per MOU rates. Accordingly, because (1) we find (and AT&T/WorldCom agree) that the Verizon study should be used to set TELRIC-compliant dedicated transport rates, (2) the Verizon common transport study is based on the Verizon dedicated transport study, and (3) AT&T/WorldCom do not challenge the process that Verizon uses to convert transport costs to common transport per MOU rates,[1303] we adopt the Verizon common transport cost study.[1304]

507. AT&T/WorldCom's critique of the Verizon common transport study fails to show that the Verizon study does not comply with the Commission's rules. AT&T/WorldCom's primary criticism of the Verizon study is that it uses Verizon's existing network as a starting point for calculating costs, rather than following a reconstructed network approach.[1305] Given the similarities between the Verizon and the AT&T/WorldCom models, the argument essentially is that the existing network design used by Verizon is less efficient than the reconstructed network design modeled by the MSM.

508. We find AT&T/WorldCom's argument unconvincing. First, although a reconstructed network design may be more efficient than the existing incumbent LEC network

[1300] *See* AT&T/WorldCom Initial Cost Brief at 195 ("The interoffice module of the [MSM] is by no means perfect, but it provides an appropriate, if conservative, estimate of transport costs.").

[1301] *See* 47 C.F.R. § 51.509(c), (d).

[1302] *See* Verizon Ex. 100P, Vol. VI, Part C-9 (Common Transport), sections 1.2 (Cost Study Methodology) and 3 (Inputs) (confidential version).

[1303] AT&T/WorldCom Initial Cost Brief at 195.

[1304] Because we determine not to use the MSM to set common transport rates, we need not (and therefore do not) address Verizon's criticisms, or AT&T/WorldCom's responses thereto, of the MSM transport module.

[1305] *Id.* at 193.

because the embedded network may not deploy the most efficient current technology, in this specific instance the existing network modeled by Verizon deploys SONET transport technology, which both sides argue is efficient and currently available. Indeed, this is the same technology modeled by AT&T/WorldCom in the MSM. Because the existing network modeled by Verizon uses the technology that would be deployed in a competitive market, we cannot conclude that the network modeled by Verizon reflects a less efficient design than would exist in a competitive market. Second, the additional concerns raised by AT&T/WorldCom are largely input issues (*e.g.*, the number of nodes per ring, the EF&I factor), rather than modeling issues. AT&T/WorldCom implicitly concede that, with appropriate inputs (which we address below), the Verizon common transport cost study is capable of modeling a forward-looking transport network.[1306] Finally, a simple comparison of the costs and rates produced by the two models supports the finding that the Verizon study results in the "lowest cost network configuration," as required by the Commission's rules.[1307] Because Verizon has incentives to overstate rather than understate the cost of providing network elements, and because Verizon's common transport cost study satisfies the Commission's other criteria (*e.g.*, transparency; use of efficient, currently available technology), the fact that Verizon's cost study produces a lower cost estimate[1308] indicates that its study better reflects a lower cost network configuration for common transport than does the MSM. Accordingly, we conclude that the Verizon cost study is the better choice for calculating common transport costs and rates.

B. Dedicated Transport Rate Structure – Digital Cross-Connect Systems and Multiplexing Equipment

1. Positions of the Parties

509. The parties disagree whether DCS or multiplexing equipment should be included in the costs, and hence the rates, for dedicated transport. Verizon proposes including the costs for DCS and multiplexing in the calculation of dedicated transport costs.[1309] It claims that DCS and multiplexing are integral parts of dedicated transport.[1310] Verizon also claims that it is under no obligation to offer either DCS or transport multiplexing as a stand-alone UNE, and therefore it need not price either on a stand-alone basis.[1311] AT&T/WorldCom claim that they should be able to order dedicated transport with or without DCS or multiplexing, and that we should establish different rates for multiplexing, for DCS, and for dedicated transport inclusive and exclusive of multiplexing and/or

[1306] *See id.* at 195.

[1307] *See* 47 C.F.R. § 51.505(b)(1).

[1308] *See* AT&T/WorldCom Initial Cost Brief at 188, Attach. at 3.

[1309] Verizon Ex. 122, at 159-61.

[1310] *Id.* at 159-60; *see also* Tr. at 5617-19.

[1311] Verizon Ex. 122, at 159-60.

DCS.[1312]

2. Discussion

510. We find that dedicated transport rates should be established separately for dedicated transport that includes both DCS and multiplexing, that includes each individually, and that includes neither. We decline to establish separate stand-alone rates for DCS or multiplexing.

511. We base these findings on our determinations in the *Non-Cost Arbitration Order*. There, we found that Verizon is not required to make available DCS or transport multiplexing as stand-alone UNEs, but that Verizon must make available dedicated transport both with and without DCS and/or multiplexing.[1313] Consistent with this determination, we require that Verizon, in its compliance filing, establish rates for dedicated transport (at each capacity level (*e.g.*, DS-1, DS-3, STS-1, OCn)) in the following manner: (1) including DCS and multiplexing; (2) including DCS only; (3) including multiplexing only; and (4) including neither DCS nor multiplexing.

C. Number of Nodes per SONET Ring and Number of Ports per Node

1. Positions of the Parties

512. Verizon assumes the use of OC-48 SONET rings, which have a capacity of 48 DS-3s, as the basis for its dedicated transport cost study.[1314] Because each DS-3 requires two ports, each ring has 96 ports.[1315] Although Verizon's current network in Virginia averages 3.79 nodes per OC-48 ring, Verizon estimates that on a forward-looking basis it will average six nodes per OC-48 ring.[1316] This assumption results in 16 ports per node (96 / 6 = 16).[1317] Verizon uses its forward-looking estimate of six nodes per ring to determine the flat-rate monthly recurring dedicated transport rates.[1318] Verizon uses the existing 3.79 figure to establish the per mile dedicated transport rate.[1319]

513. AT&T/WorldCom agree that Verizon's assumption of OC-48 SONET rings, with 48

[1312] AT&T/WorldCom Ex. 12, at 125, 132-40; Tr. at 5612-19; AT&T/WorldCom Initial Cost Brief at 190-91.

[1313] *See Non-Cost Arbitration Order*, 17 FCC Rcd at 27279-86, paras. 492-506; *see also id.* at 27142-46, paras. 210-17.

[1314] Verizon Ex. 122, at 149-50; *see* Verizon Initial Cost Brief at 118.

[1315] Verizon Ex. 122, at 149.

[1316] *Id.* at 149-52; Verizon Initial Cost Brief at 118-20.

[1317] Verizon Ex. 122, at 150.

[1318] *Id.* at 149; Verizon Initial Cost Brief at 118.

[1319] *See* Verizon Ex. 122, at 154-55; Tr. at 5622.

DS-3s per ring and 96 ports per ring, is reasonable,[1320] but they do not agree with Verizon's assumption of six nodes per ring. Rather, AT&T/WorldCom argue that the number of nodes per ring will decrease in a forward-looking environment from the number of nodes per ring today.[1321] They do not, however, propose a reduced number. Instead, they propose using the number of nodes in Verizon's network today, 3.79.[1322] This figure is consistent with number of nodes per SONET ring that Verizon has on its actual networks in New York and Massachusetts.[1323] Using 3.79 as the number of nodes, AT&T/WorldCom calculate the number of ports per node to be approximately 26.[1324] AT&T/WorldCom also claim that Verizon made equivalent errors in calculating the number of ports per node for STS-1 and OC-3 dedicated transport. AT&T/WorldCom propose that the number of ports per node for these transport facilities should be 26 and 9, respectively.[1325]

2. Discussion

514. We adopt AT&T/WorldCom's position. In re-running its transport cost studies, we require Verizon to assume 3.79 nodes per OC-48 SONET ring. We also require Verizon to assume 26 ports per node for OC-48 SONET rings and STS-1 capacity dedicated transport, and 9 ports per node for OC-3 dedicated transport.

515. These are the only conclusions supported by the record. Both sides agree that 3.79 nodes represent the average number of nodes per OC-48 SONET ring in Verizon's network in Virginia today.[1326] Although data from Verizon's existing network may not be the best source of data to use in determining TELRIC rates, it is the only objective data before us on this issue.[1327] When asked directly by Commission staff to identify the objective support for assuming six nodes instead of 3.79, Verizon merely responded that six was the forward-looking estimate provided by its

[1320] AT&T/WorldCom Ex. 12, at 126.

[1321] *Id.* at 129-30 n.122; Tr. at 5630-32.

[1322] AT&T/WorldCom Ex. 12, at 127; AT&T/WorldCom Initial Cost Brief at 189-90.

[1323] Tr. at 5630-31; AT&T/WorldCom Initial Cost Brief at 189-90.

[1324] AT&T/WorldCom Ex. 12, at 127, 129 n.121 (explaining their calculations).

[1325] *Id.* at 131.

[1326] Tr. at 5628-29; Verizon Reply Cost Brief at 94-95; AT&T/WorldCom Initial Cost Brief at 189; AT&T/WorldCom Reply Cost Brief at 95. Verizon claims in its surrebuttal testimony that the 3.79 figure is too low because it does not include nodes located outside Virginia that are on rings that are located in both Virginia and other states (*e.g.*, a ring that traverses both Virginia and Maryland). Verizon Ex. 122, at 151, *as modified by,* Verizon Ex. 179 (Errata to Recurring Cost Panel Surrebuttal), at 1. Verizon, however, provides no detailed explanation of how such rings and their associated nodes factor into its cost model. Moreover, Verizon fails to provide a recalculation of the 3.79 figure that would have corrected for this issue, and, as discussed in more detail below, Verizon uses the 3.79 node input in determining the per mile dedicated transport rates.

[1327] *See* Verizon Ex. 122, at 155.

experts.[1328] Verizon fails to provide any additional support for its supposition.[1329] In addition, AT&T/WorldCom claim that a forward-looking network would utilize fewer nodes per ring than are used today, not more as Verizon claims.[1330] Verizon's unsupported statements fail to demonstrate that the number of nodes per ring would increase in a forward-looking network. Because neither side provides us with valid support for a number of nodes other than the 3.79 existing in Verizon's network today, and because AT&T/WorldCom propose to use the 3.79 figure, we have no basis to use any figure other than 3.79. This is particularly true in light of our previous conclusion that the Verizon cost study and the actual Verizon transport network reflect forward-looking transport technology (*i.e.*, SONET).

516. Verizon's use of six nodes to calculate the monthly recurring dedicated transport rates, moreover, is inconsistent with its use of 3.79 nodes to calculate the dedicated transport mileage rate. Verizon attempts to explain this discrepancy by claiming (1) that it needs to use the existing node locations for mileage calculations in order to take into account the physical attributes of the existing network (such as geography), but (2) that these considerations are immaterial to determining the proper forward-looking electronic configuration.[1331] We find Verizon's argument unpersuasive. If actual, current local conditions require Verizon to calculate its forward-looking mileage costs using the current number and location of nodes, then Verizon must also take these same factors into account in calculating the forward looking electronic configuration of its rings. This Verizon fails to do. Conversely, if Verizon's forward-looking network would have, on average, six nodes per ring, then this same assumption must apply when calculating mileage rates. Thus, we conclude that Verizon inappropriately models two different dedicated transport networks, one to determine the monthly recurring rates and one to determine the distance (*i.e.*, per mile) rates.

517. In addition, Verizon claims that many of the inputs and assumptions in its model are interrelated and that one input or assumption cannot be changed without altering numerous others. Specifically, Verizon claims that all of the following inputs and assumptions are interrelated: the number of nodes, the average load on the ring, and the amount of interconnection between rings.[1332] Verizon fails, however, to provide any alternative inputs in the event that we determine, as we do here, that AT&T/WorldCom propose a more appropriate input for the number of nodes per ring. Therefore, because no record exists on which to change any of these related inputs, we do not alter them.

518. Finally, we note that, although the parties discuss this issue in their testimony only with respect to dedicated transport, the issue is also relevant to the rates generated by

[1328] Tr. at 5626-28; *see also* Verizon Ex. 107, at 155.

[1329] AT&T/WorldCom Reply Cost Brief at 95.

[1330] Tr. at 5631-32.

[1331] Verizon Ex. 122, at 154-55; Tr. at 5628-29; *see* Verizon Initial Cost Brief at 119.

[1332] Verizon Ex. 122, at 152-54; Tr. at 5633.

Verizon's common transport study. Indeed, as stated above, the Verizon common transport study itself is based on the Verizon dedicated transport study. Therefore, we require that the AT&T/WorldCom proposal of 3.79 nodes per ring be used in the Verizon dedicated transport cost study, and in the relevant inputs imported into the Verizon common transport study from the dedicated transport study.[1333]

D. EF&I Factor

1. Positions of the Parties

519. Verizon proposes an EF&I factor for transport of 53.2 percent.[1334] The EF&I factor is one method Verizon uses to arrive at the "total cost installed" of facilities and equipment when the contract price for facilities or equipment purchased by Verizon from third party suppliers does not include the engineering, furnishing and installation costs.[1335] Among the facilities to which the Verizon cost studies apply an EF&I factor is interoffice transport.[1336] Verizon applies an EF&I factor only to those investments for which the data in the VRUC database do not include engineering, furnishing and installation costs with the investment amounts.[1337] Verizon relies on data contained in its Detailed Continuing Property Record (DCPR) database to calculate the EF&I factor.[1338] The DCPR database contains material costs and in-place costs for each piece of equipment.[1339] To calculate the EF&I factor, Verizon divides the sum of the total material-only investments in a plant account (*e.g.*, SONET equipment) by the sum of the total installed investment in that account.[1340] Verizon adjusts the EF&I factor upward to ensure that the costs for engineering, furnishing and installation remain constant when material prices decline as a result of forward-looking assumptions (*i.e.*, Verizon assumes that labor costs remain constant even if material costs decline, thus increasing the EF&I factor).[1341] Verizon develops its EF&I factors on a region-wide basis for the entire Verizon East footprint, based on the classes of equipment being placed rather

---

[1333] *See* AT&T/WorldCom Initial Cost Brief at 195 ("If the Commission decides to use Verizon's common transport costs, however, those costs were developed using the same underlying cost elements set forth in Verizon's dedicated transport cost study, and accordingly the same adjustments proposed by AT&T and WorldCom should therefore be made to the common transport costs.").

[1334] Verizon Initial Cost Brief at 122.

[1335] Verizon Ex. 107, at 40.

[1336] *Id.* at 41, 217.

[1337] *Id.* at 41. Verizon claims to develop EF&I factors for digital circuit equipment, the digital switch, and SONET circuit and other terminal equipment. Verizon Initial Cost Brief at 56 n.54.

[1338] Verizon Ex. 107, at 42.

[1339] Tr. at 4632-33; *see* Verizon Ex. 107, at 42.

[1340] Verizon Ex. 107, at 42; Tr. at 5080-83.

[1341] Verizon Ex. 107, at 42-43.

than the specific equipment installed, and based on actual 1998 accounting data.[1342] The EF&I factor applied to a particular piece of equipment is thus the average factor for the entire plant account, assigned on a *pro rata* basis to the individual piece of equipment.[1343] Verizon uses its VCost system to apply the transport EF&I factor.[1344]

520. AT&T/WorldCom claim that the 53.2 percent transport EF&I factor proposed by Verizon is unreasonable when compared to those adopted in other states, including New York.[1345] They contend that Verizon fails to identify separately the installation and miscellaneous costs that it uses to calculate the transport EF&I factor.[1346] AT&T/WorldCom instead propose using the transport EF&I factor that Verizon proposed in New York and that was adopted by the New York Commission – 36.4 percent.[1347]

521. Verizon objects to what it perceives as AT&T/WorldCom's unsupported attack on the credibility of its presentation.[1348] Verizon admits that the DCPR database is not accurate for individual pieces of equipment, but it claims that the database is accurate in the aggregate.[1349] Verizon also claims that the New York EF&I figure is inapposite because the that figure is based on 1997 data and the Virginia figure is based on 1998 data.[1350] Moreover, Verizon maintains that, because equipment costs will decrease over time, but installation costs will not, the EF&I factor will increase over time.[1351]

2. Discussion

522. We find that, although we have some concerns about both Verizon's and AT&T/WorldCom's proposals, the Verizon proposal is the better of the two proposals because it relies on more recent vintage data. Therefore, under the baseball arbitration rules,[1352] we adopt

---

[1342] *Id.* at 44; Verizon Initial Cost Brief at 122-23; Verizon Reply Cost Brief at 96.

[1343] Verizon Ex. 107, at 44; Tr. at 5080-83; *see* Verizon Initial Cost Brief at 57.

[1344] Verizon Ex. 100, Vol. VII, Part D-2, section 1 (Study Overview), subsection 1.3 (Cost Study Methodology) at 1.

[1345] AT&T/WorldCom Ex. 12, at 138; AT&T/WorldCom Initial Cost Brief at 191-92.

[1346] AT&T/WorldCom Ex. 12, at 137-38.

[1347] *Id.* at 138; AT&T/WorldCom Initial Cost Brief at 192.

[1348] Verizon Initial Cost Brief at 96-97.

[1349] Verizon Ex. 107, at 44; Tr. at 5080-83.

[1350] Verizon Ex. 122, at 158-59; Verizon Initial Cost Brief at 96-97.

[1351] Verizon Ex. 122, at 158-59; Verizon Initial Cost Brief at 96-97.

[1352] *See supra* section II(C).

Verizon's proposed transport EF&I factor.

523. There is some doubt about the reliability of both Verizon's and AT&T/WorldCom's proposed EF&I factors. Our concerns stem from the fact that the EF&I factor for a specific piece of equipment is derived by applying to the equipment an unsupported *pro rata* share of the cost of installing all equipment associated with that account.[1353] As a result, the relationship between the actual installation costs associated with particular pieces of equipment and the installation estimates used to determine the EF&I factor is unclear. The actual costs may be less than or greater than the *pro rata* allocation. Verizon's claim that the lack of accuracy of the individual in-place costs is not relevant because the factor is calculated on an aggregate basis[1354] may not resolve this issue because the *pro rata* allocation appears to bear no relationship to the EF&I costs associated with any particular type of equipment within an account.[1355] In addition, we were unable to identify individual SONET equipment for which the in-place costs in the DCPR database were actually 1.532 times the material costs or how the VCost system applies the transport EF&I factor. Because both Verizon's and AT&T/WorldCom's proposals rely on Verizon's EF&I methodology, our methodological concerns apply equally to both proposals.

524. Although both sides use the same general approach, the Verizon proposal is superior because it uses more recent vintage data. Specifically, Verizon relies on 1998 vendor contracts,[1356] whereas the Verizon New York factor proposed by AT&T/WorldCom uses 1997 data.[1357] We reject AT&T/WorldCom's assertion that the 1997 data is somehow superior to the 1998 data used by Verizon here. First, their claim that the New York Commission endorsed the use of the 1997 data[1358] is misleading. Our review of the relevant New York orders indicates that the transport EF&I factor was not contested in that proceeding, and, therefore, that the New York Commission did not directly address this issue.[1359] AT&T/WorldCom thus offer no valid reason for us to reject Verizon's 1998 data in favor of older 1997 data.[1360]

[1353] Verizon Ex. 107, at 42, 44; Tr. at 5080-81.

[1354] Verizon Ex. 107, at 44; Tr. at 5080-83; *see* Verizon Initial Cost Brief at 57.

[1355] Verizon Ex. 107, at 42, 44; Tr. at 5080-83.

[1356] Verizon Ex. 107, at 44; Verizon Initial Cost Brief at 122-23; Verizon Reply Cost Brief at 96.

[1357] AT&T/WorldCom Ex. 12, at 138; AT&T/WorldCom Initial Cost Brief at 192.

[1358] AT&T/WorldCom Ex. 12, at 138; AT&T/WorldCom Initial Cost Brief at 192.

[1359] *See Proceeding on Motion of the Commission to Examine New York Telephone Company's Rates for Unbundled Network Elements*, Case 98-C-1357, Recommended Decision of Administrative Law Judge Joel A. Linsider on Module 3 Issues (New York Commission May 16, 2001), *modified in part, New York Commission Pricing Decision*.

[1360] *Cf. Investigation by the Department of Telecommunications and Energy on its Own Motion into the Appropriate Pricing, based upon Total Element Long-Run Incremental Costs, for Unbundled Network Elements and Combinations of Unbundled Network Elements, and the Appropriate Avoided-Cost Discount for Verizon New*

(continued....)

525. Second, Verizon is correct that, as material costs decline, the EF&I factor should increase.[1361] We agree with Verizon that, while transport material costs have been declining in recent years, transport EF&I costs, which are largely driven by labor costs, have not.[1362] If EF&I costs remain fairly constant while material costs decline, then the EF&I factor will, as a mathematical matter, increase. Although we note that Verizon's proposed EF&I factor increased considerably from the 36.4 percent proposed in New York to the 53.2 percent proposed here,[1363] we find reasonable Verizon's explanation that its transport EF&I factor should have increased when more recent, lower, 1998 cost data are used, particularly when presented with no countervailing data by AT&T/WorldCom.

526. Accordingly, we adopt the 53.2 percent transport EF&I factor that Verizon proposes. Further, we note, just as we noted in the nodes per ring section,[1364] that although the parties discuss the transport EF&I factor in their testimony only with respect to dedicated transport, the issue is also relevant to the rates generated by Verizon's common transport study. Indeed, as stated above, the Verizon common transport study itself is based on the Verizon dedicated transport study. Therefore, we adopt the Verizon transport EF&I factor for use in both the Verizon dedicated and common transport studies.[1365]

(Continued from previous page)
England, Inc. d/b/a Verizon Massachusetts' Resale Services in the Commonwealth of Massachusetts, Docket No. 01-20, Order at 342 (Massachusetts Commission Jul. 11, 2002) (Massachusetts Department rejecting the AT&T proposal to determine the transport EF&I factor based on 1997 data rather than 1998 data) (*Massachusetts Commission Pricing Decision*).

1361 Verizon Ex. 122, at 158-159; Verizon Initial Cost Brief at 96-97.

1362 Verizon Ex. 122, at 158-159; Verizon Initial Cost Brief at 96-97.

1363 We find the amount of the increase particularly troubling because Verizon calculates its EF&I factor on a region-wide basis for the entire Verizon East footprint, including both Virginia and New York. *See* Verizon Ex. 107, at 44.

1364 *See supra* section VI(C).

1365 *See* AT&T/WorldCom Initial Cost Brief at 195 ("If the Commission decides to use Verizon's common transport costs, however, those costs were developed using the same underlying cost elements set forth in Verizon's dedicated transport cost study, and accordingly the same adjustments proposed by AT&T and WorldCom should therefore be made to the common transport costs.").

VII. ACCESS TO OSS

A. Background

527. In the *Local Competition First Report and Order*, the Commission required incumbent LECs to provide access to their OSS on an unbundled basis pursuant to section 251(c)(3).[1366] Specifically, the Commission required incumbent LECs to provide nondiscriminatory access to the systems used for pre-ordering, ordering, provisioning, maintenance and repair, and billing.[1367]

B. Positions of the Parties

528. Verizon proposes a recurring charge for Access to OSS of $.84 per month per competitive LEC line. Verizon seeks to recover two types of costs through this charge: (1) initial development costs to make access to Verizon's OSS possible; and (2) the associated recurring capital costs and ongoing maintenance expenses associated with provisioning OSS access on an ongoing basis.[1368] The development costs identified by Verizon are costs to modify Verizon's pre-existing "core" systems and to develop new "middleware" systems and interfaces necessary to provide competitors with access to the core systems.[1369] The ongoing recurring costs identified by Verizon are costs incurred to maintain and update the software and hardware used to provide competitive LECs with access to Verizon's OSS.[1370] In support of its proposal, Verizon provides extensive testimony regarding the changes it made to its existing OSS and the new systems it developed in order to provide access to competitive LECs.[1371]

529. Verizon's cost study identifies development costs attributable to Virginia operations based on its claimed actual region-wide costs that Verizon incurred from 1996 through 1999, which it projects forward using productivity and inflation adjustments.[1372] Verizon allocates region-wide costs to Virginia based on the percentage of access lines located in Virginia.[1373] Verizon identifies $227 million in region-wide development costs, of which $22.7

[1366] *Local Competition First Report and Order*, 11 FCC Rcd at 15763, para. 516.

[1367] *Id.* at 15766-67, para. 523.

[1368] Verizon Ex. 107, at 242-43. After 10 years, the development costs would be fully recovered and the recurring charge would fall to $.47 per line per month. *Id.* at 295-96.

[1369] *Id.* at 273.

[1370] *Id.* at 284.

[1371] *Id.* at 254-72.

[1372] *Id.* at 275-76.

[1373] *Id.* at 245-46.

million is allocated to Virginia.[1374] Although the core systems are used by both Verizon and the competitive LECs, Verizon asserts that none of the development costs identified in its cost study resulted in improvements to the basic functioning of the core systems for Verizon's own use.[1375]

530. Verizon also identifies ongoing recurring costs attributable to Virginia.[1376] As with the development costs, these costs were incurred on a region-wide basis and allocated to Virginia operations.[1377] Verizon identifies $50 million in region-wide ongoing costs, of which $4.9 million is allocated to Virginia.[1378] The ongoing costs reflect the annual carrying cost of capital investment needed for the general purpose computer equipment used to provide competitive LECs with access to OSS. The ongoing costs also reflect maintenance expenses for work done to improve software performance and correct operational faults. Verizon assumes that the annual maintenance cost for a system is 15 percent of the initial development cost.[1379] As with development costs, Verizon asserts that these ongoing costs are completely separate from the costs it incurs to maintain the core OSS for its own retail use.[1380] To avoid double recovery, Verizon removed $48 million in ongoing expenses from its calculation of ACFs.[1381]

531. Although Verizon presents separate estimates of its development costs and ongoing costs, it does not actually distinguish between these two categories in its internal accounting systems.[1382] Instead, Verizon assumes that all OSS expenses for 1996 and 1997 were related to development work. For 1998, Verizon assumes that an amount equal to 15 percent of 1996 and 1997 investments represents maintenance of the systems installed in 1996 and 1997, and that the remaining expense is attributable to development work.[1383] Similarly, an amount equal to 15 percent of development work for 1996, 1997, and 1998 is assumed to represent maintenance of the systems installed in those years. Verizon states that the 15 percent factor is

[1374] *Id.* at 245.

[1375] *Id.* at 244; Tr. at 3972-73.

[1376] Verizon Ex. 107, at 245.

[1377] *Id.* at 245-46.

[1378] *Id.* at 245.

[1379] *Id.* at 288-89.

[1380] *Id.* at 244.

[1381] *Id.* at 66; Verizon Ex. 122, at 245. We discuss this adjustment in greater detail in our discussion of ACFs. *See supra* section III(E)(3)(c).

[1382] Verizon Ex. 107, at 276.

[1383] *Id.* at 277; Tr. at 3927-28.

supported by independent industry sources.[1384]

532. Verizon asserts that its actual OSS costs for 1996-1999 represent the forward-looking costs of providing access to OSS because they were incurred fairly recently and have been adjusted forward to reflect productivity and inflation. Verizon also states that the systems at issue were developed with input from AT&T/WorldCom and other competitive LECs and that most of these systems are still in use today.[1385] Verizon proposes to recover both the development costs and the ongoing recurring costs through a single monthly recurring charge to competitive LECs. Verizon calculates the proposed charge by spreading the total cost over the number of UNE loops, platform/combinations, and resold lines that are forecasted to be in service in Virginia over a 10-year period.[1386]

533. AT&T/WorldCom propose a fundamentally different approach to recovery of OSS-related costs. They characterize Verizon's initial development costs as "competition onset" costs that are attributable to the transition from a monopoly to a competitive environment.[1387] AT&T/WorldCom argue that these costs are not caused by competitive LECs and therefore should not be recovered through UNE charges. They further suggest that imposing these costs on competitive LECs would not be competitively neutral because competitive LECs also incur their own costs in order to use Verizon's systems.[1388] To reflect the unique nature of these development costs, AT&T/WorldCom's primary proposal is that all companies bear their own costs for access to OSS and that Verizon not be permitted to impose an OSS charge on competitive LECs.[1389]

534. As an alternative to their preferred approach, AT&T/WorldCom propose that Verizon recover any one-time development costs in connection with providing access to OSS through a competitively neutral surcharge on all Virginia telecommunications users.[1390] AT&T/WorldCom suggest that the Commission's treatment of LNP costs provides precedent for this approach, as do recent decisions of the California Commission approving similar surcharges.[1391] If we were to accept Verizon's estimates of development costs,

---

[1384] Verizon Ex. 107, at 289-93.

[1385] *Id.* at 249-50. Moreover, even if some systems are not in use today, Verizon states that the current systems build on the earlier systems, and therefore competitive LECs still benefit from this development work. Verizon Ex. 122, at 235-36.

[1386] Verizon Ex. 107, at 251-54.

[1387] AT&T/WorldCom Ex. 12, at 145.

[1388] *Id.* at 146.

[1389] *Id.* at 147; Tr. at 3959.

[1390] AT&T/WorldCom Ex. 12, at 146.

[1391] *Id.* at 150-52; Tr. at 3952-54.

AT&T/WorldCom's proposed monthly surcharge would equal $.08 per line for a period of ten years.[1392]

535. If Verizon is authorized to recover its OSS development costs from competitive LECs, AT&T/WorldCom challenge the amount Verizon proposes to recover. First, AT&T/WorldCom argue that the costs calculated by Verizon are not forward-looking because they are based on Verizon's actual costs for systems that are no longer state-of-the-art.[1393] In a forward-looking network, AT&T/WorldCom assert, Verizon would design its OSS to accommodate multiple providers from the start, rather than incurring costs to modify existing retail systems. AT&T/WorldCom also argue that Verizon has not provided sufficient documentation to justify the costs upon which its charges are based and it has not demonstrated that it excluded costs of developing uniform systems following the Bell Atlantic/NYNEX merger.[1394]

536. AT&T/WorldCom also argue that Verizon's ongoing OSS costs, such as software maintenance, are a normal cost of business that should be recovered in the same way as other recurring expenses, through its ACFs.[1395] AT&T/WorldCom point out that maintenance costs are not separately tracked by Verizon, and therefore there is no way to determine if the charge is appropriate.[1396] As to ongoing capital costs, AT&T/WorldCom suggest that Verizon has significantly overstated these costs by relying on 1998 figures, rather than forward-looking numbers that reflect the substantial price decreases for computer equipment since then.[1397]

C. Discussion

537. In this arbitration, we must resolve three questions with respect to Verizon's OSS costs: (1) whether Verizon should be able to recover OSS costs through a monthly recurring charge, through its ACFs, or through an end-user surcharge; (2) whether recovery should be based on the actual costs Verizon incurred in modifying its OSS or the forward-looking cost of providing competitive LECs with access to the OSS functionality; and (3) whether Verizon should be able to recover all of its OSS costs from competitive LECs, or only a portion of those costs.

538. On the first question, Verizon is correct that access to OSS is a separate UNE and therefore may have a price that is charged to competitive LECs for each customer they serve,

[1392] AT&T/WorldCom Ex. 12, at 149-50.

[1393] *Id.* at 153-54.

[1394] *Id.* at 154-58.

[1395] *Id.* at 160-61, 163; Tr. at 3959-60.

[1396] AT&T/WorldCom Ex. 12, at 161.

[1397] *Id.* at 162.

whether through UNEs or resale. In the *Local Competition First Report and Order*, the Commission clearly established that access to OSS is a separate UNE, a result strongly advocated by competitive LECs.[1398] Because access to OSS is a separate network element, it is subject to the pricing standards in section 252(d)(2) and the Commission's TELRIC pricing rules. For the same reason, we reject AT&T/WorldCom's argument that these costs should be recovered solely through ACFs, or solely through an end-user surcharge. Incumbent LECs recover the costs of every other UNE that the Commission has identified through a distinct charge for that UNE, and there is no Commission precedent that supports AT&T/WorldCom's proposal to deny Verizon that same opportunity with respect to this particular UNE.

539. As to the second question, to be consistent with TELRIC, the OSS charge must be based on the forward-looking cost of deploying efficient systems. We agree with AT&T/WorldCom that one way to develop a TELRIC-based OSS rate is to calculate the cost of systems that accommodate multiple providers from the start, rather than the cost of modifying legacy systems.[1399] Under that approach, AT&T/WorldCom are correct that neither the capital cost nor the maintenance expense would be attributable solely to competitive LECs.[1400] AT&T/WorldCom do not, however, provide any information whatsoever on the cost of this type of forward-looking OSS.

540. Verizon offers two rationales for its proposal to recover the costs it actually incurred modifying its legacy OSS during 1996-1999. One rationale is that it is entitled to recover from competitive LECs all the costs it actually incurred because these costs were forward-looking at the time and would not have been incurred but for the entry of competitive LECs.[1401] We disagree with Verizon's suggestion that it is entitled to a dollar-for-dollar recovery of costs incurred in upgrading its OSS if those costs were forward-looking *at the time they were incurred*. Such an approach is at odds with the purpose of a TELRIC proceeding. Nothing in the Commission's UNE pricing rules entitles any incumbent LEC to recover the actual costs incurred for any part of its network, including the OSS. Rather, an incumbent LEC is entitled to charge a rate that reflects the forward-looking economic cost of providing a UNE.[1402]

541. The second rationale offered by Verizon is that the recent costs it incurred

1398 *Local Competition First Report and Order*, 11 FCC Rcd at 15763, para. 516.

1399 AT&T/WorldCom Ex. 12, at 154.

1400 *Id.*

1401 Verizon Ex. 122, at 226 ("This proceeding is about determining whether the costs Verizon VA incurred to provide CLECs with Access to OSS as required by the Act were forward-looking at the time they were incurred."); *id.* at 215 ("Verizon VA would not have modified its OSS to provide access if it had not been required to do so for the CLECs' benefit, and if the CLECs left the market, Verizon would not continue to carry these costs.").

1402 *See* 47 C.F.R. § 51.505.

represent the best estimate of the current forward-looking cost of deploying new OSS.[1403] This rationale is consistent with TELRIC principles, although it may not generally be the case that past expenses, without adjustment, are a valid proxy for forward-looking costs. In this case, however, we will adopt Verizon's cost estimates.[1404] Verizon's approach recognizes that OSS is different from other UNEs. The data regarding customers and facilities that are the core of Verizon's OSS have been developed over a period of decades. To determine the cost of providing access to OSS and the underlying data regarding Verizon customers and facilities, we must make some assumption about the state of the existing OSS. It is not possible to assume a "blank slate" as we do in developing the forward-looking cost of the physical plant,[1405] and Verizon's choice of 1996 as the starting point is not unreasonable.

542. AT&T/WorldCom criticize Verizon's estimates of OSS development costs, but they present no alternative figures and provide no basis on which we can determine independently the appropriate amount of OSS development costs. For example, AT&T/WorldCom have not specified the costs associated with systems that they claim are no longer in use, they have not specified how to reflect price decreases since 1999, and they have not identified the costs associated with newer systems that perform the necessary OSS functions. For similar reasons, we will accept Verizon's estimates of the ongoing expenses for OSS. Verizon's estimate that expenses will be 15 percent of development costs is essentially an ACF that is supported by anecdotal evidence, rather than actual expense-to-investment ratios. Although the 15 percent ratio would be more convincing if Verizon actually tracked these costs separately, AT&T/WorldCom provide no evidence to demonstrate that a 15 percent figure is inappropriate.

543. As to the final question, we agree with Verizon that incumbent LECs should be permitted to recover the forward-looking costs of providing access to OSS solely from competitive LECs.[1406] Although AT&T/WorldCom are correct that these costs are similar to LNP costs, the fact that Congress did not establish specific cost recovery requirements for OSS as it did for LNP is a key distinction that makes the Commission's LNP precedent

---

[1403] Verizon Ex. 122, at 226 ("Verizon VA's costs are forward-looking because they reflect the most forward-looking technology currently deployed to provide CLEC access to Verizon VA's OSS.").

[1404] We agree with Verizon that, in order to avoid double recovery, the amount to be recovered should be reduced to reflect OSS costs that already have been recovered pursuant to the mechanism established by the Virginia Commission in its 1997 pricing decision. Verizon Ex. 107, at 283. We also accept Verizon's decision to amortize development costs over 10 years and to apply a gross revenue loading factor to account for uncollectibles. *Id.* at 282-83. AT&T/WorldCom do not challenge these aspects of Verizon's proposal.

[1405] For example, even if Verizon had followed AT&T/WorldCom's suggestion of projecting the cost of new systems that would accommodate multiple carriers from the start, there still would be a cost associated with loading the data from the legacy systems into the new systems.

[1406] This principle would not apply to costs that are incurred by the incumbent LEC for systems that benefit both retail and wholesale customers. In this proceeding, however, AT&T/WorldCom did not demonstrate that Verizon's retail customers benefit from the systems at issue.